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(56) Documents cited

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GB 0396189 A	GB 0339856 A	US 3667449 A
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(58) Field of search
UK CL (Edition J) F4W
INT CL⁴ F24C

(54) Shields for burners

(57) A gas stove comprises at least one shielding member 11 extending over a gas burner nozzle or nozzles 12, to protect the nozzle or nozzles from oil or other material falling from a cooking vessel 17 e.g. a wok.

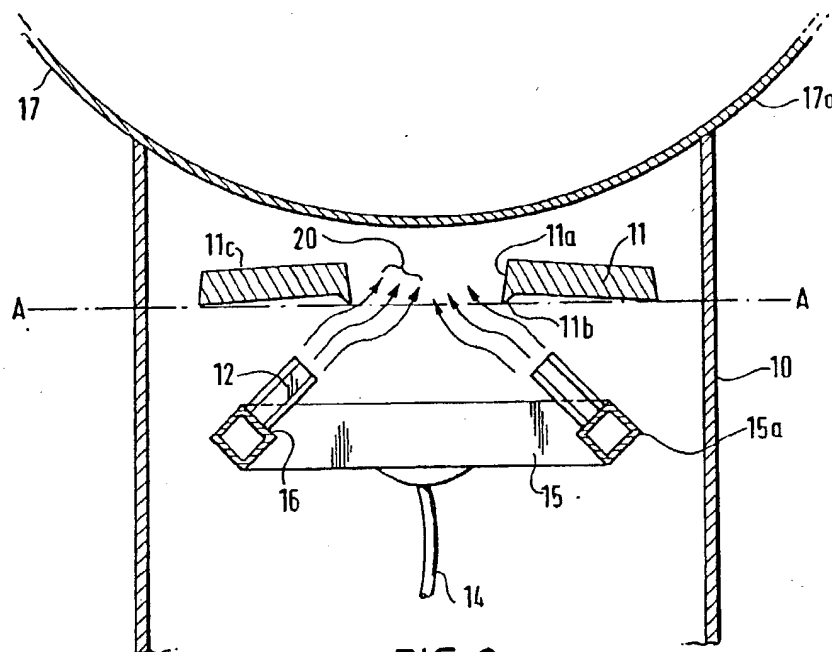


FIG. 2.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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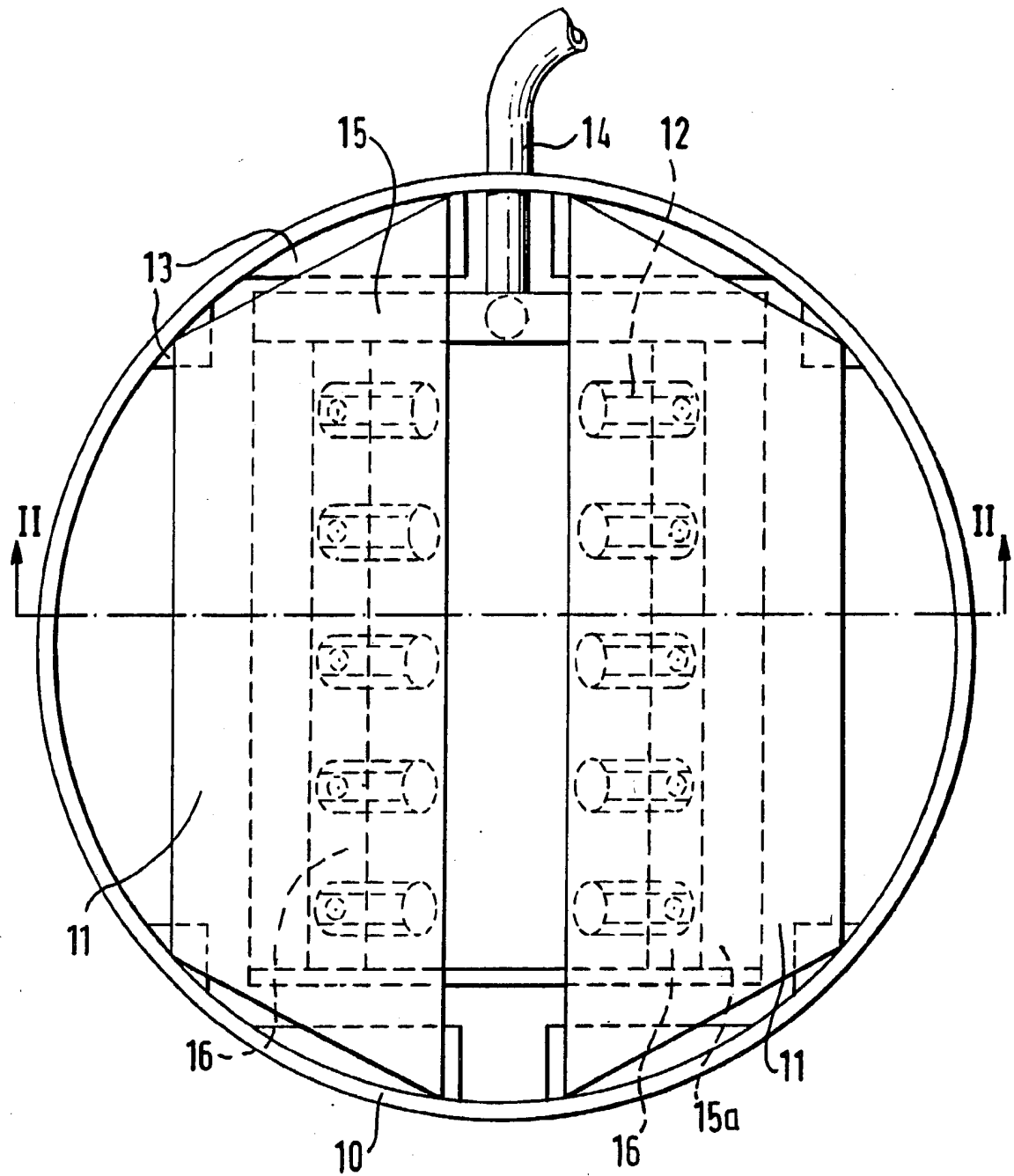


FIG. 1.

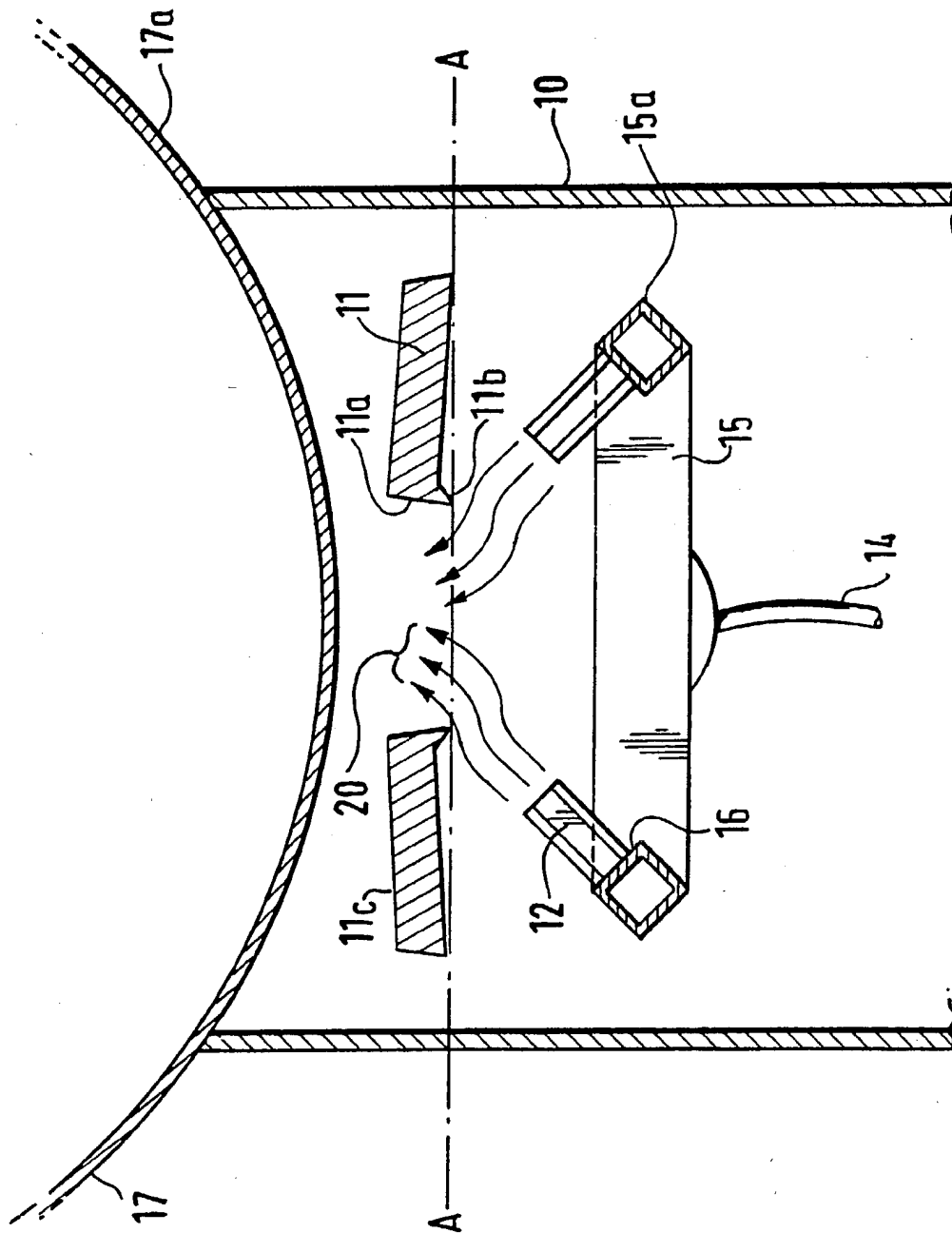


FIG. 2.

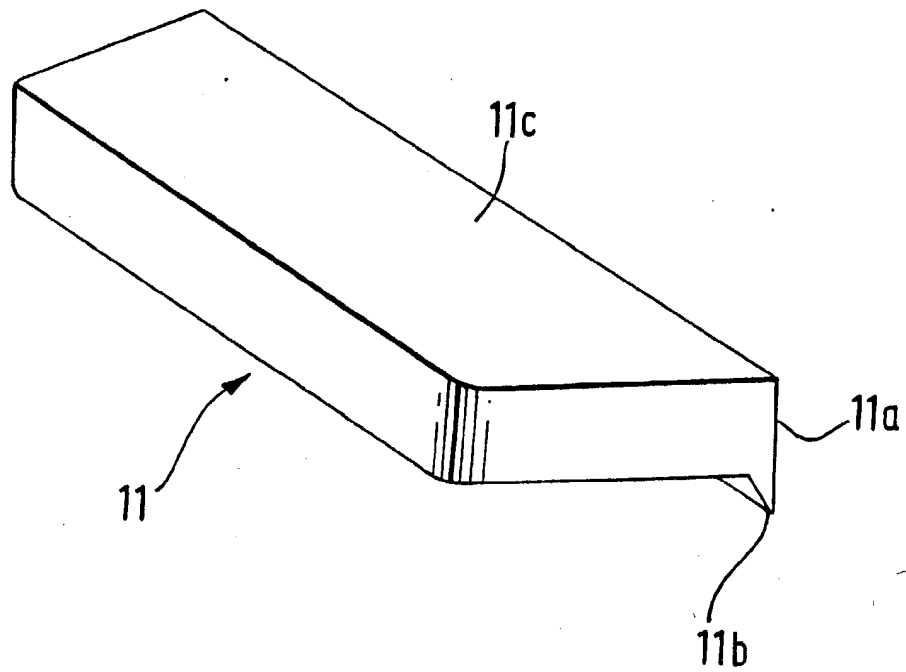


FIG. 3.

GAS STOVE

This invention relates to gas stoves and is concerned particularly, although not exclusively, with a gas stove arrangement for use with a chinese cooking vessel such as a wok.

In a known gas stove for use with a chinese wok, it is common to have the wok supported above several gas burners. Frequently, during the activity of stir frying, small quantities of cooking oil may run down the outside of the wok which is roughly hemispherical in shape. Droplets of oil may land on a gas burner nozzle and, because of the tiny dimensions of the gas inlet aperture in the burner nozzle, the drops can form blockages, and render the burner useless.

The blockage may be partial, in which case the performance of the burner can be drastically impaired, or total in which case the burner ceases to function and must, at some point, be dismantled and cleaned.

Clearly in either of the above cases, the user is considerably inconvenienced.

It is an object of the present invention to provide a gas stove arrangement which reduces the risk of burner-aperture blockage due to spilled cooking oil.

According to the invention, a gas stove arrangement for use with a cooking vessel comprises at least one gas burner nozzle and at least one shielding member extending over the gas burner nozzle to protect the nozzle from oil or other material falling from a cooking vessel positioned above the gas burner nozzle.

The nozzle may be as claimed in U.K. Patent No. 2063452.

Preferably, the stove has a supporting member for supporting the shielding member and a cooking vessel, at spaced locations.

The supporting member may comprise a hollow cylindrical stand.

The hollow cylindrical stand may possess gaps around its edges to permit air to reach the nozzles.

The gas nozzles may be arranged in rows.

Preferably the gas nozzles are inclined to the horizontal.

The angle at which the gas nozzles may be inclined to the horizontal may be acute.

There may be two shielding members laterally spaced from each other defining a passageway therebetween to permit the unhindered delivery of the flame from the nozzles to the cooking vessel, which shielding members are located between the nozzles and the cooking vessel whilst being vertically spaced from both.

There may be two rows of nozzles directed upwardly and towards one another, one row beneath each shielding member.

Preferably, the burner nozzle or nozzles occupies an area whose perimeter is defined by points which lie vertically below the horizontal extent of the lowermost

face of the shielding member.

The or each shielding member may be of generally trapezoidal shape and there may be a drip flange or lip extending along the longer, lower edge.

The or each shielding member may be positioned so that its upper face is inclined to the horizontal.

Preferably, the or each shielding member is composed of a refractory material.

The invention will now be described in detail and with reference to the accompanying figures in which :-

Figure 1 is a plan view of a gas stove not showing a cooking vessel;

Figure 2 is a cross sectional view of the stove in Figure 1 taken along the line II-II of Figure 1, showing the position of a cooking vessel; and

Figure 3 is a more detailed perspective view of a shielding member depicted in Figures 1 and 2.

Referring particularly to Figure 1, a cylindrical support member 10 of internal diameter 12 ins, contains two shielding members 11 and two rows each of five burner nozzles 12, which rows are spaced apart. The support member 10 provides support for the shielding members 11 at four spaced mountings 13, at a height of one and a quarter inches from the uppermost extent of the burner nozzles 12. Gas is supplied to the burner nozzles 12 via a tube 14 and a pipe framework 15 to which the burner nozzles are fixed. The pipe framework 15 is of a

generally square cross section and the burner nozzles are screwed into holes thereon. The burner nozzles may be as described in U.K. Patent No. 2063452.

As can best be seen from Figure 2, the two long branch pipes 15a of the pipe network 15 have been mounted with such an orientation that their inner faces 16, on which the burner nozzles 12 are threadably mounted, are inclined at 50° to the horizontal.

The shielding members are inclined slightly so that the line A-A is horizontal.

With particular reference to Figure 3, the shielding member 11 has upper and lower surfaces generally of trapezoidal shape with a "drip lip" or flange 11b extending along the edge of the longer, lower face. The shielding member 11 is moulded in a ceramic refractory material.

In use, flames from the burner nozzles 12 contact part of the inner, sloping faces 11a of the shielding members 11 and project through a gap there-defined to heat the underside of a cooking vessel 17 in the form of a wok as depicted by arrows 20. The cooking vessel 17 is supported by the cylindrical support 10 parts of which are cut away at locations (not shown) to admit air, thereby aiding combustion. Any cooking oil which is caused to spill out of the cooking vessel 17 and which runs down its outer surface 17a will eventually leave this surface in droplet form. The droplets of oil will fall from the outer surface of the cooking vessel.

The activity of stir frying involves a great deal of movement of the oil and the food material in the wok.

The shielding members 11 completely protect the nozzles 12 from spilled oil and/or food.

The shielding members 11 are in contact with the flame from burner nozzles 12 and consequently they become hot. In the event of oil falling onto the shielding members 11, it is likely that the oil will vaporize in the heat. If some of the oil does not vaporize, for example due to the shielding member having not yet become heated or simply due to a large quantity of oil, the oil will either run down an inside face 11a of shielding member 11 or will run down the inclined upper face 11c of the shielding member 11, and in either case will fall harmlessly beyond the extent of the burner nozzles 12.

Thus, the burner nozzles 12 are protected from contamination from oil droplets, and as a result they are less likely to become blocked and hence require a lesser degree of maintenance.

The dimensions of the shielding members and the burner nozzles together with the support member may be altered, as may the angle of incline of the burner nozzles, whilst still retaining the usefulness of the invention.

For example the distance from the uppermost extent of the burner nozzles to the mountings 13 may vary from 1 inch to 1 and a half inches. Larger dimensions may be necessary for more powerful apparatus. The angle of 50° may instead vary from 40° to 60° .

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification and which are open to

public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS

1. A gas stove arrangement comprising at least one gas burner nozzle and at least one shielding member extending over the burner nozzle.
2. A gas stove arrangement as described in Claim 1, further comprising at least one shield supporting member.
3. A gas stove arrangement as described in Claims 1 or 2, further comprising at least one support member for supporting one or more cooking vessels.
4. A gas stove arrangement as claimed in Claim 3, in which, in use, one or more shielding members are located between the apertures of the gas burner and the cooking vessel, whilst being vertically spaced from both.
5. A gas stove arrangement as described in any of the preceding Claims, in which any shield member is made of a refractory material.
6. A gas stove arrangement as described in any of the preceding Claims, in which one or more shield members is, or has a lower or upper face which is, inclined to the horizontal.
7. A gas stove arrangement as described in any of the preceding Claims, wherein any shield member incorporates one or more peripheral drip flanges or lips.
8. A gas stove arrangement as described in any of the preceding Claims, wherein any shield member is of generally trapezoidal shape.

9. A gas stove arrangement as described in any of the preceding Claims, wherein a plurality of gas burner nozzles are arranged substantially in at least one row.

10. A gas stove arrangement as described in any of the preceding Claims, wherein two or more shielding members are laterally spaced from each other, defining a passageway therebetween.

11. A gas stove arrangement as described in any of the preceding Claims, in which two or more gas burner nozzles are directed substantially towards each other.

12. A gas stove arrangement as described in any of the preceding Claims, in which one or more gas burner nozzles are inclined to the horizontal.

13. A gas burner arrangement as described in any of the preceding Claims, in which any member for supporting one or more cooking vessels, or any shield member support, is substantially cylindrical or circular in cross section.

14. A gas burner arrangement as described in any of the preceding Claims, in which any member for supporting one or more cooking vessels, or any shield member support, includes gaps or holes therein.

15. A gas burner arrangement as described in any of the preceding Claims, in which the gas burner nozzle or nozzles occupy an area whose perimeter is defined by points which lie vertically below the horizontal extent of the lowermost faces of the shielding member.

16. A gas stove arrangement as described according to any one of, or any combination of the preceding Claims.

17. A gas stove arrangement substantially as described herein with respect to Figures 1 to 3 of the accompanying drawings.